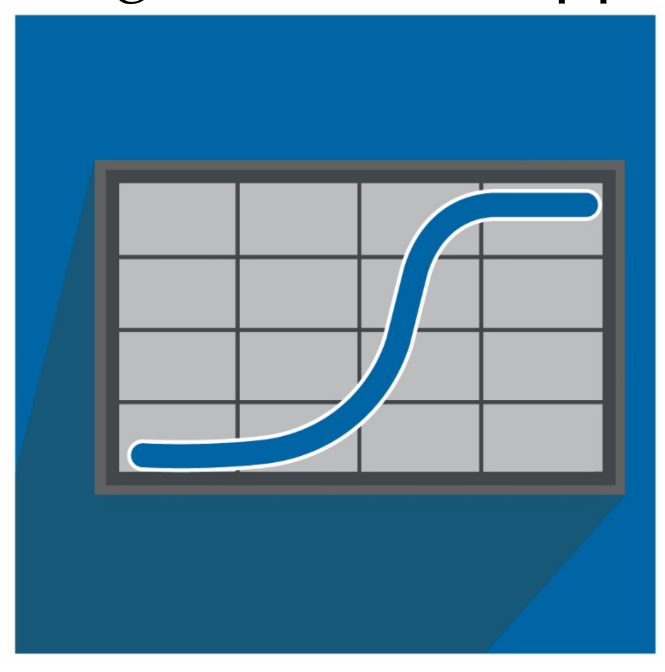
LogPhase 600 App



Getting Started Guide

LogPhase™ 600 App
Getting Started Guide



www.biotek.com

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2021

Notices

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Contents

Revision History

Rev	Date	Changes
A	2020	Initial release
B	1/2021	Added good-to-know and troubleshooting information per feed-back from the field.

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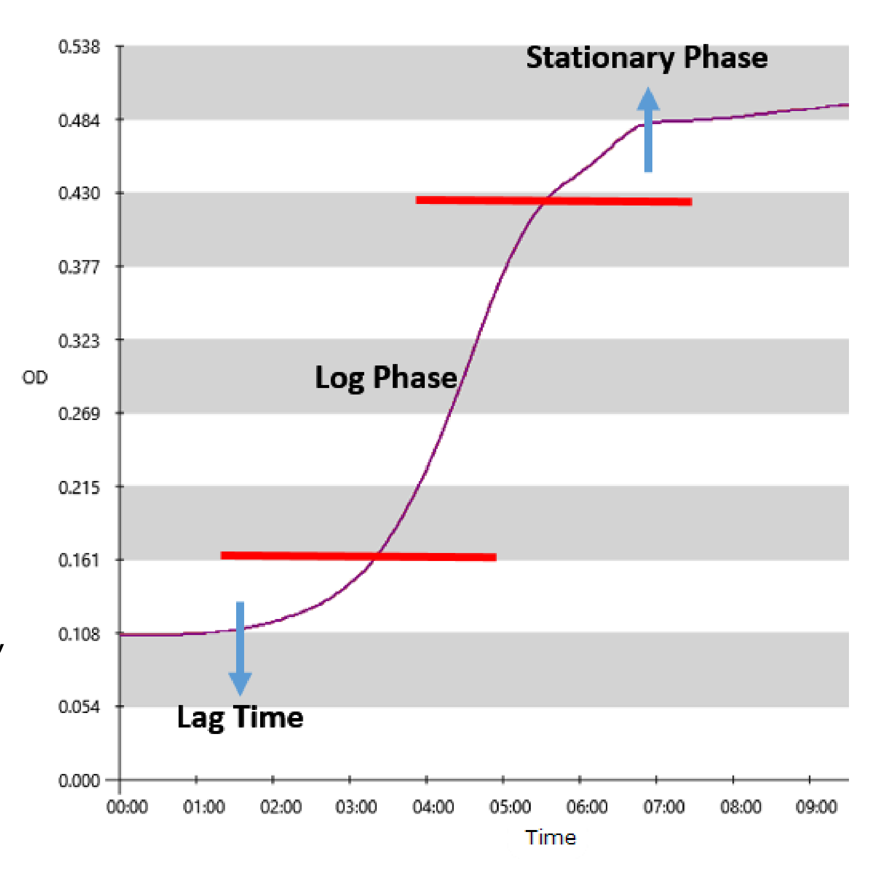
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Overview

The **LogPhase 600 Multi-Plate Reader** and **LogPhase 600 App** support microbial cell growth assays. For up to four 96-well microplates simultaneously, the LogPhase 600 incubates, shakes, reads optical density, and generates growth curves and other analysis results.

During incubation and shaking in the LogPhase 600, microbes grow and multiply. As cells multiply, light passing through the well is reduced. The LogPhase 600 measures this light reduction as optical density.

Changes in the OD are measured by the instrument and represented as Growth Curves. The software automatically analyzes the Growth Curves reporting the Lag Time, Growth Rate, and Stationary Phase for each sample.



Recommended Installation Sequence

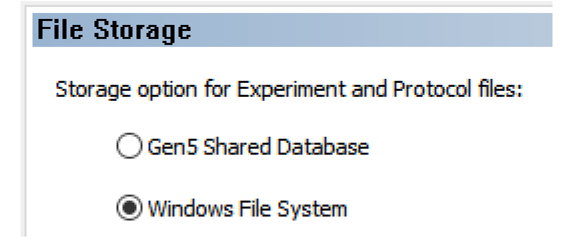
You will have the best experience by following this sequence of steps:

1. First, install the LogPhase™ 600 Multi-Plate Reader according to installation instructions provided with the instrument. Turn on the reader and let it complete its self-test.
2. **Gen5 v. 3.09 or higher**: Install Gen5 and configure the reader, including: **Test Communications**. (Best practice: register the Gen5 software now.)

   Note: For use with the LogPhase App, Gen5 v3.09 or higher requires Windows 10.

   Note: The **Plug and Play** configuration option is required.

3. Set **System>Preferences>File Storage** to use **Windows File System**.

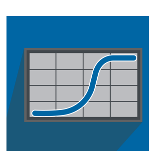
   

   Note: Gen5 Secure and Gen5 IVD editions use the Gen5 Shared Database by default. Change the setting to use the Windows File System.

4. Close **Gen5**. Gen5 cannot be running simultaneously with the LogPhase 600 App.
5. Install the **LogPhase 600 App**.

   Note: Always let the reader complete its self-test **before** launching the app.

6. Turn on the LogPhase 600 instrument, ensure the lid is closed, and launch the LogPhase 600 App.

   A desktop icon (shown here) is created during software installation.

   You can also launch the LogPhase 600 App from the Windows® start menu: **BioTek> LogPhase 600 App**.

7. Register the LogPhase 600 App software.

Good to know:

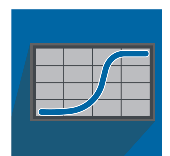
- Select **Help** from the menu to watch **How-To videos**.
- Numerous support tools, like app notes are available online at **www.biotek.com**. Visit BioTek's **Customer Resource Center**.
- Make sure **Gen5** is closed before launching and running the LogPhase 600 App.
- The LogPhase 600 instrument must be turned on before launching the LogPhase 600 App.
- Disabling a computer's sleep mode is recommended for all applications, but it is

especially important when running kinetic or time-elapse assays.

- The LogPhase 600 App requires 1440 x 900 minimum screen resolution.

Register with BioTek

The Pre-Registration screen appears when you launch the LogPhase 600 App until the software is registered. A trial-version serial number can be used for the specified number of days until a licensed version is purchased. Unless the purchased version is higher than the trial version there is no need to reinstall the software; simply register the software.



You must have administrative privileges to register with BioTek. Generally, the user who logged in to Windows when installing the app should be logged in when registering the software.

If prompted for administrative privileges, engage them before registering the software: Locate and right-click the LogPhase 600 App desktop icon, and select **Run as administrator**. At the User Account Control dialog, click **Allow**.

Launch the LogPhase 600 App and Register the Software

1. Open the app by clicking its desktop icon or by using the Windows Start menu and selecting **BioTek > LogPhase 600 App**.
2. At the Pre-Registration dialog enter the product serial number.
3. Click **Register** to register the software and receive a password. The Registration dialog appears with the serial number and the site key (the site key is provided by your computer).

Note: Click **Demo** to run the app without registering it for the number of days displayed below the Demo button.

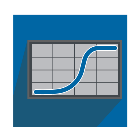
4. Click **Go to Internet Site**.
    - Alternatively, if your Internet browser and LogPhase 600 App are on different computers, enter the BioTek URL into your browser's address field. Make note of the serial number and site key to proceed.
    - If you do not have access to the Internet, contact BioTek.
    - When using the same computer, you can copy and paste (Ctrl+C and Ctrl+V) the serial number and site key into the registration form.
5. At BioTek's Software Registration website page, enter or paste the serial number and site key information into the form and click **Submit**.
6. A registration form will be displayed containing any information BioTek already has about you and your organization.
7. Review and edit the information as necessary, then click **Submit Registration Form**.
8. Your password will be displayed on screen. Copy or make note of it.

9. Return to the LogPhase 600 App Registration dialog to paste or enter it into the Password field.
10. Click **Validate Password**.

The software should now be registered and you will not see the Pre-Registration screen again.

The serial number is stored in the **Help** screen.

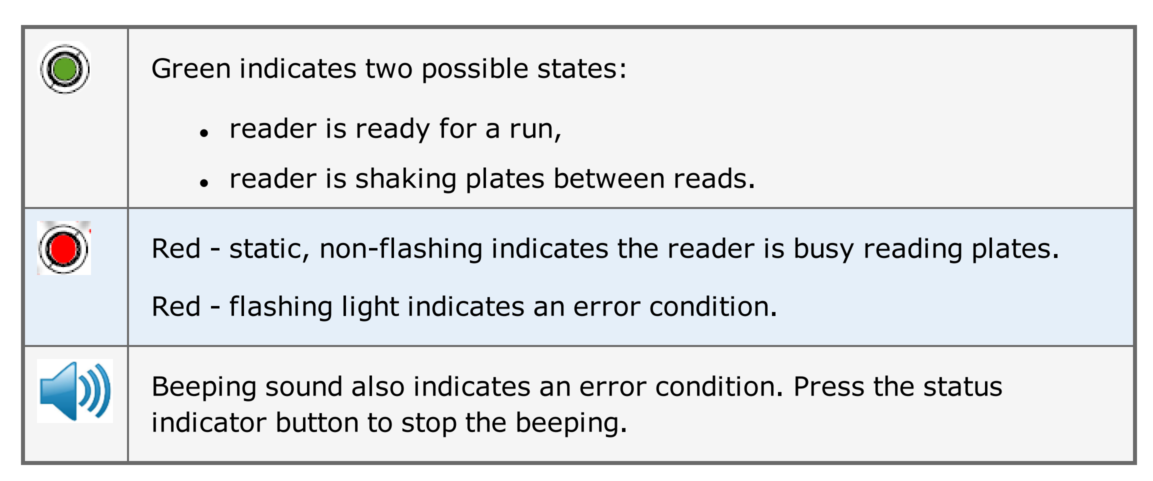
Running the LogPhase 600



Launch the LogPhase 600 App to process up to 4 microplates.

Good to Know

- **Plate seals are required.** Plate lids are not supported. Seal the plate with a product like Breathe-Easy® from Diversified Biotech or Perkin Elmer's TopSeal-A Plus (6050185) for the best performance. Take care when inserting plates onto the carrier. The plates will snap into place, be careful not to splash the liquid up onto the cover film.
- **LogPhase 600 lid must be closed.** You must close the lid before starting a run. If the lid is opened during a run, data may be lost. No data will be collected or reported for time points when the lid is open.
- **Status Indicator**: the button on front right corner of the LogPhase 600 shows its current state.



	Green indicates two possible states: • reader is ready for a run, • reader is shaking plates between reads.
	Red - static, non-flashing indicates the reader is busy reading plates. Red - flashing light indicates an error condition.
	Beeping sound also indicates an error condition. Press the status indicator button to stop the beeping.

- **Unique file names are required**: you must assign an unique name for each experiment. Filename reuse is not permitted.

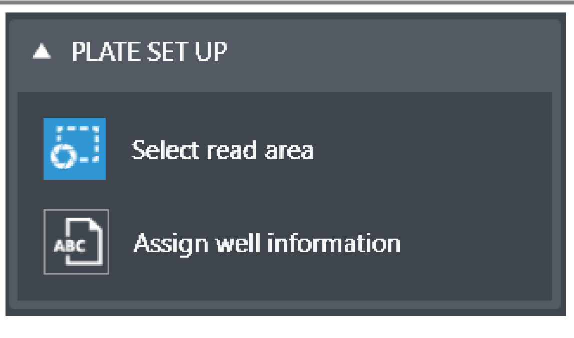
Start a New Run

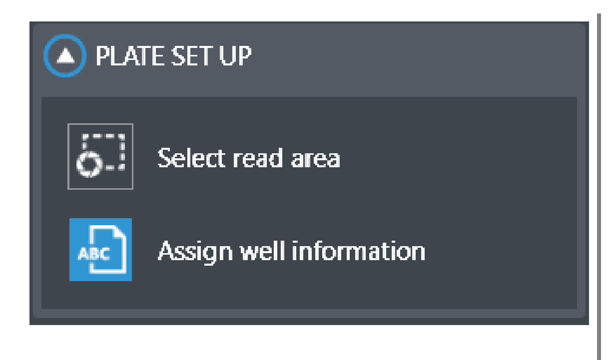
Turn on the LogPhase 600 instrument, and then launch the LogPhase 600 App. The LogPhase 600 App opens ready for a new run.

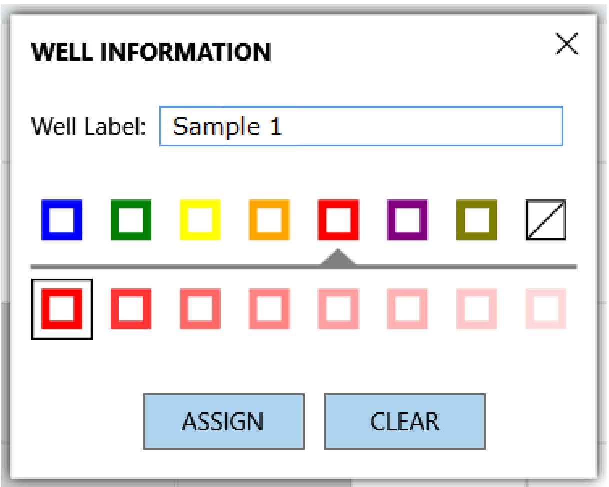


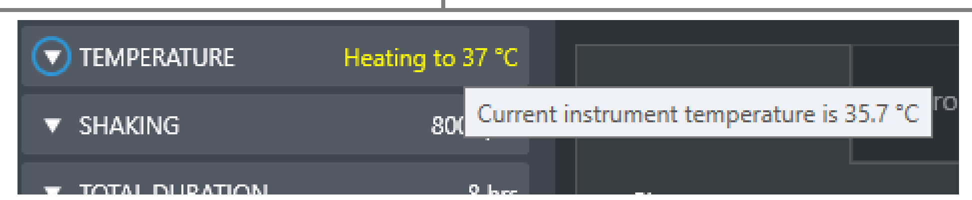
If a previous experiment is already open, select **New** from the menu to start a new run.

Define Settings

TEMPERATURE	37 °C is the default; choose another value using the list. Apply the Gradient option if condensation forms on the plate seals.
SHAKING	Select whether to include a shake step and its speed.
TOTAL DURATION	Choose the duration for your growth assay. If you are uncertain, select a time longer than needed. You can stop a run before its defined end. On the contrary, it is not possible to extend a run.
MEASUREMENT INTERVAL	Tell LogPhase 600 how often to read the plates. The Plate Count (number of plates) limits use of the smaller intervals: 2.5 minutes = one plate only 5.0 minutes = two plates max 7.5 minutes = three plates max 10 minutes = four plates
PLATE COUNT	Specify the number of plates to read.
PLATE SET UP Applies to individual plates, not ALL	Skip this step if you want to read all wells and do not need to identify specific wells. LogPhase 600 will read all wells when none have been excluded by a selection area.
	• Limit the read to certain contiguous wells by selecting the read area: activate the option, and then click and highlight wells in the plate map to identify the wells to read. • Assign well information, if useful: activate the option, and then click one or more contiguous wells. When the well ID window opens, use it to label wells and apply an identifying color.







Hover over the yellow text to see the instrument's current temperature.

START ASSAY After defining the settings, load the plates into the reader and click **Start Assay**.

During a Run

Ideally, you can load your plates and leave them alone for the duration of the experiment. If, however, you need to interrupt a run, review these guidelines. Interruption may be necessary, to stagger plate start times, refill plate media, or examine a plate during a run, for example.



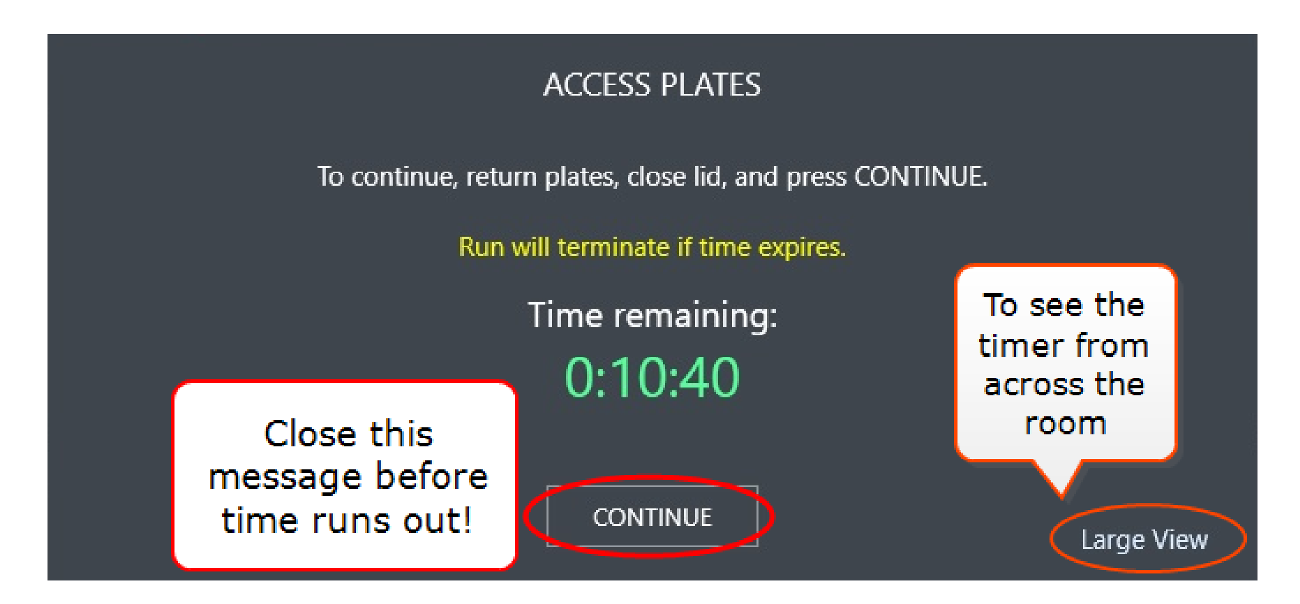
Requirement: Kinetic interval must be set for 20 minutes or more.

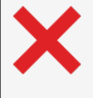
The **Access Plates** button is available after the first read is completed for all plates. The option stays available until seven minutes before the next kinetic interval is scheduled to start.

Shaking stops when the Access Plates button is clicked, and a timer, similar to below, is displayed. Shaking begins again when you close the timer message (and close the lid).

The clock runs out before the start of the next read. If the timer message is not closed before the clock runs out, the experiment will end.

Important: ASAP! If you must manipulate a plate, do it as quickly as possible. If the next read is scheduled to begin, and the Access Plates timer is open, the run will fail.



		**Do not lift the lid when the status indicator is red** and static, non-flashing, this indicates the reader is busy reading plates. Read data will be lost while the lid is open.

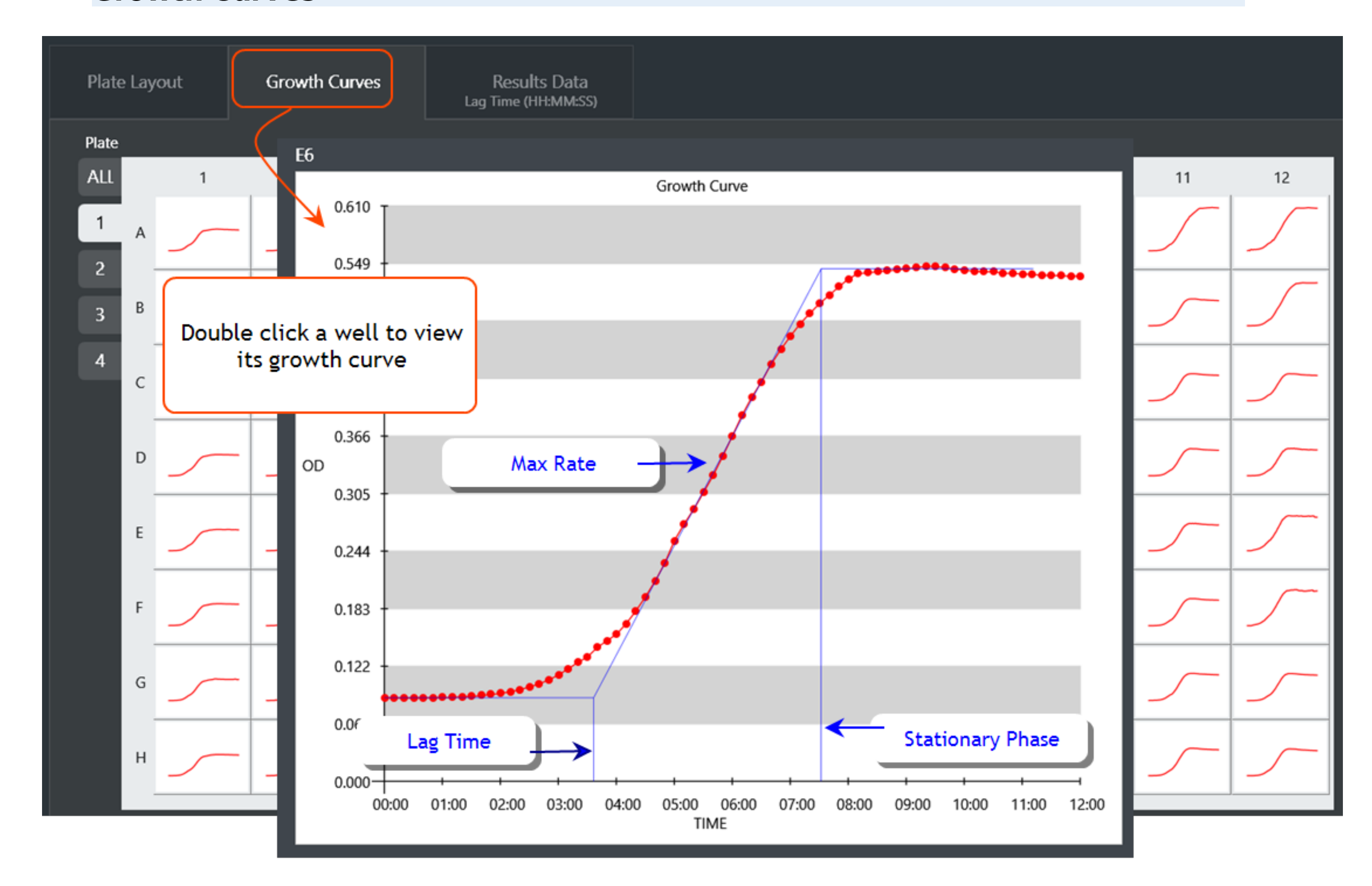
STOP TEST

If you have gathered enough data in the experiment, you can use the **Stop Test** button to end the run. A minimum of 15 reads is required to perform the analysis. The LogPhase 600 App will display the number of data points collected to that point, and give you the option to continue the run or end it.

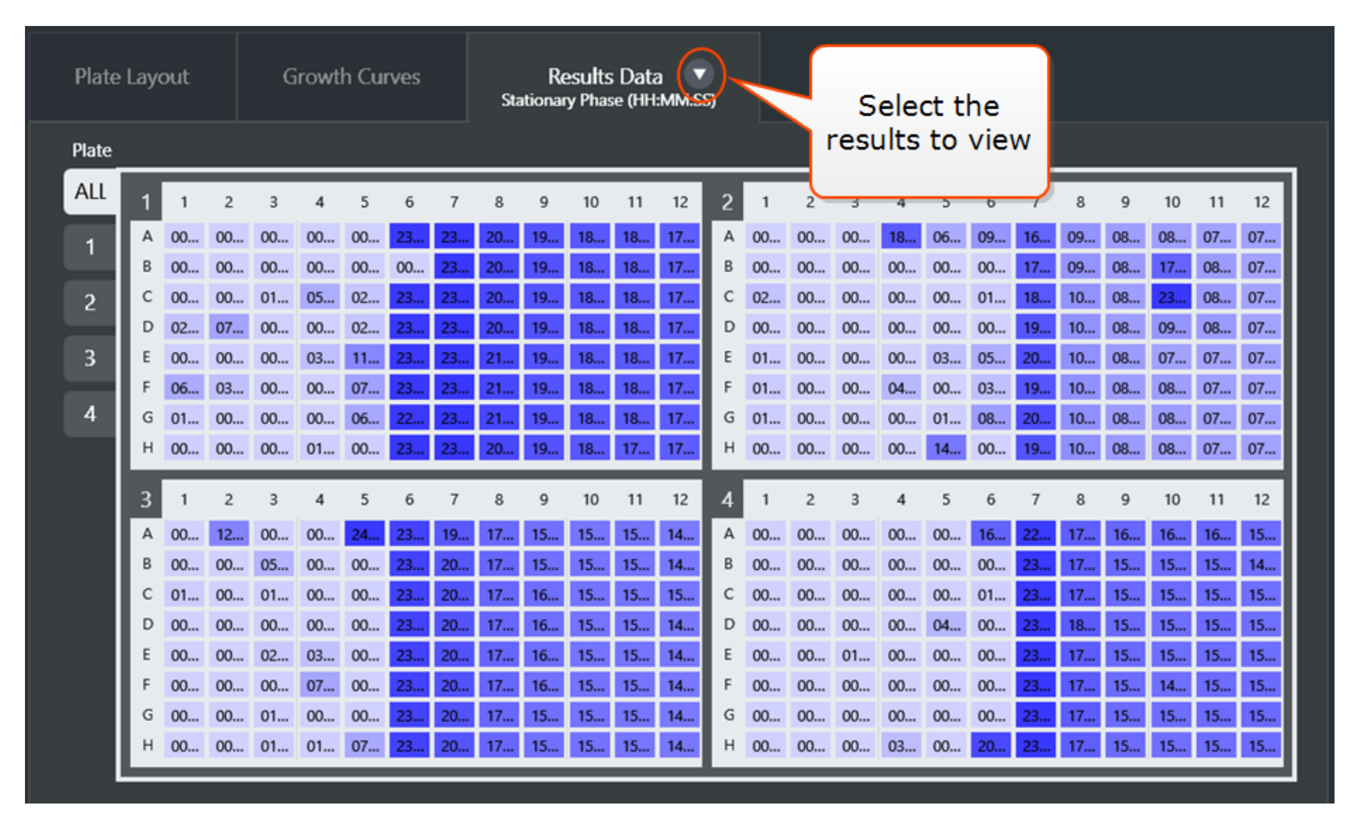
Reviewing Results

> **Important:** The LogPhase 600 App displays results, including growth curves, when sufficient data has been collected. However, **Lag time, Max Rate OD/Min, and Stationary Phase values may be incorrect during the instrument run and should not be relied upon until end of the run.**

Growth Curves



Results Data



Max Rate OD/Min

LogPhase 600 calculates the Max Rate OD/Min, that is the maximum slope of the Growth Curve (graph of Optical Density (OD) vs. time for each well).

Maximum slope is determined as follows:

- Starting at the first point of the Growth Curve, the LogPhase 600 App evaluates the number of points defined in the protocol and performs linear regression among these points to evaluate slope. The value of the slope is expressed in OD/Min.
- LogPhase 600 repeats the above operation starting at the second point, and repeats again at the third point, and so on.
- Finally, LogPhase 600 compares all calculated slopes to determine the maximum slope. The value of maximum slope is reported as Max Rate OD/Min.

Lag Time

Lag time is the slow growth segment of the curve. LogPhase 600 calculates the Lag Time as the time intercept between the linear regression line associated with Max Rate OD/Min and horizontal line passing through the first read point.

Stationary Phase

The time coordinate at the intersection of the regression line associated with Max Rate OD/Min and the horizontal line passing through the maximum value among a series of the mean values of consecutive points along the Growth Curve (similar process to slope evaluation).

Customize Graphs and Reports

Use the **Graph Tools** to refine online views and reports.

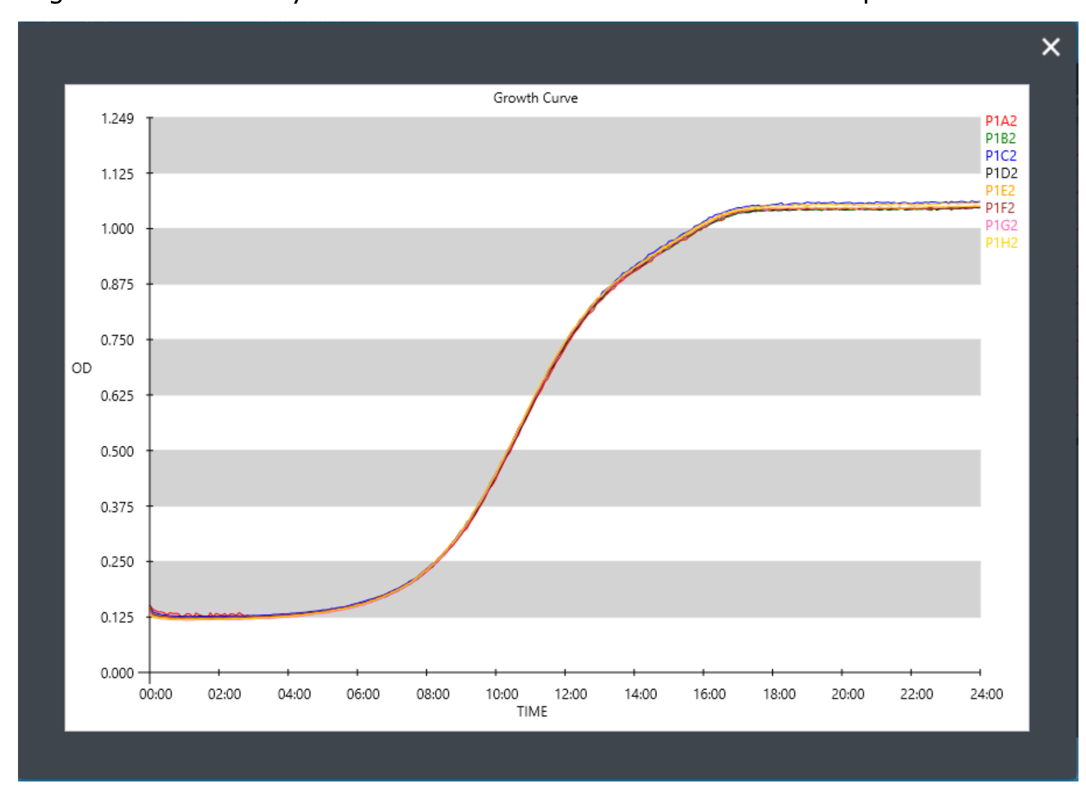


Set view to **ALL** plates, unless only one plate was run.

Highlight wells to include. Limit is 96 wells per graph.

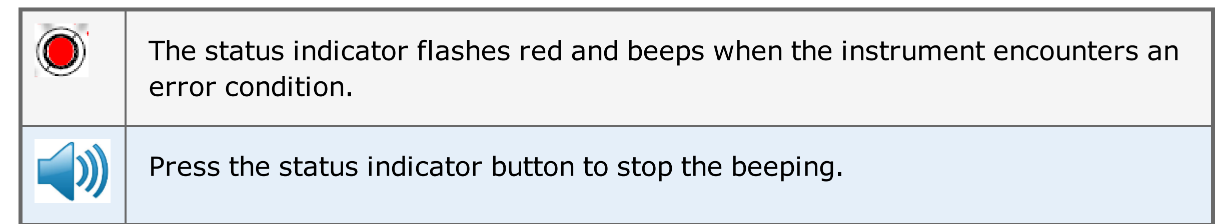
1. Expand the Graph Tools.
2. Click wells to select them.
3. Display or Export the graph.

LogPhase 600 overlays the curves of each well in one view or report:



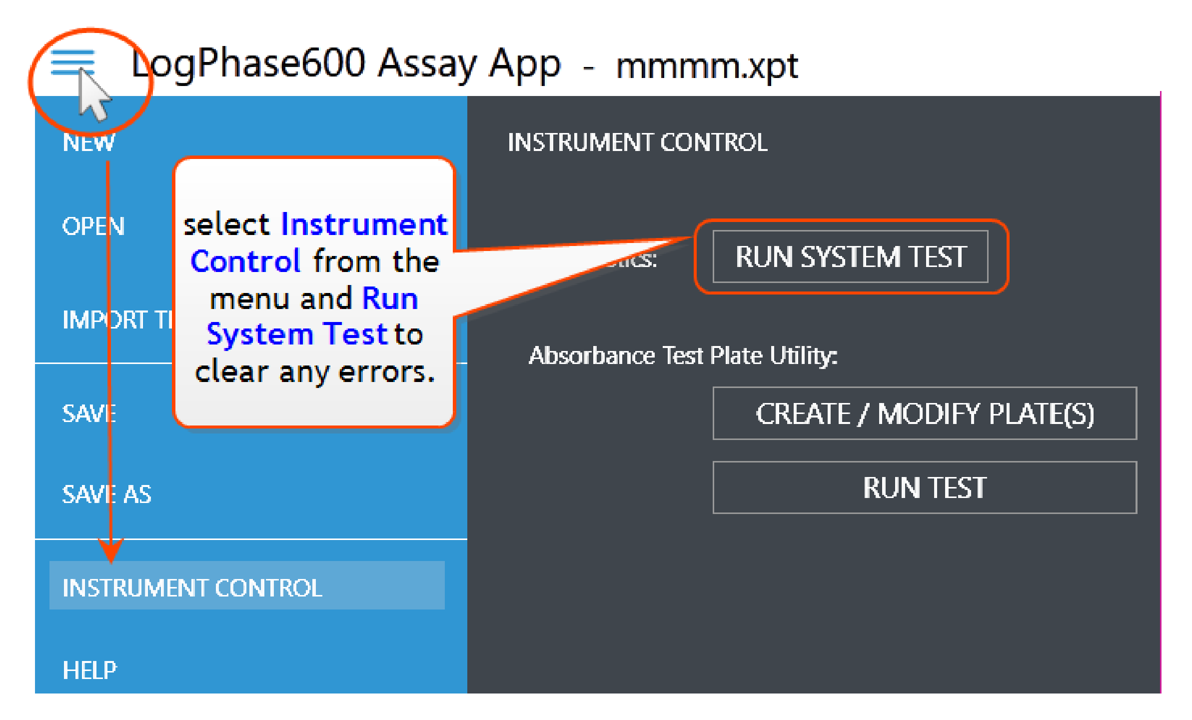
Troubleshooting

Here are some suggestions for resolving instrument errors.



	The status indicator flashes red and beeps when the instrument encounters an error condition.
	Press the status indicator button to stop the beeping.

Correct any obvious problems, like improperly seated plates and restart the instrument. This may clear any errors. If not, select **Instrument Control** from the menu and run a system test.



The System Test will report details of any errors, providing useful information for the BioTek service team. If errors persist, contact BioTek TAC.

Press Esc to close the menu.

Important: If the app does not open when you double-click the icon, try right-clicking and selecting **Run As Administrator**.

LogPhase 600 App License Agreement and Warranty

License Agreement

BioTek Instruments, Inc. (also referred to as "BioTek") has developed LogPhase 600 App software for Windows. The price paid for this software includes the license granting the purchaser a non-exclusive use of the product per the guidelines given below.

The purchase of LogPhase 600 App entitles the installation of the licensed copy on up to five (5) computers for simultaneous use. The installation of the this software for the purpose of controlling BioTek microplate reader is expressly permitted.

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BioTek warrants that for a period of ninety (90) days from the date of shipment, the software product manufactured and sold by BioTek will conform, as to all substantial operational features, to BioTek's then current published specifications (meaning those specifications in effect as of the date of purchase), and will be free of defects which, in BioTek's sole judgment, substantially affect system performance. This warranty is limited to the original purchaser and cannot be assigned or transferred. All claims under this Limited Warranty must be made in writing to BioTek, Attention: Service Department or to BioTek's authorized representative or dealer. The purchaser must notify BioTek within ninety (90) days after the date of shipment of the software to the purchaser of any claim under this limited warranty. This 90-day period shall not be extended by the delivery or receipt of any subsequent modifications to the software. Modifications to the software within a version ("Updates") are expressly excluded from the terms of this warranty. If the software is found to be defective by BioTek, BioTek's sole obligation under this warranty is to use efforts consistent with BioTek's regular business practices to attempt to remedy such a defect. In no event shall BioTek's liability under this Warranty exceed the original purchase price of the software.

This warranty shall be null and void if the purchaser makes any modifications to the software. Correction of difficulties of defects traceable to Purchaser's errors or system changes shall be billed to the purchaser at BioTek's standard time and material charges.